DOCUMENT RESUME

ED 138 034 EC 100 672

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TITLE Measurement of Intellectual Potential Mexican-American School-Age Children.
INSTITUTION Texas Education Agency, Austin.; Texas State Dept. of Mental Health and Mental Retardation, Austin.
SPONS AGENCY Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
PUB DATE Jun 76
NOTE 41p.

EDRS PRICE MF-$0.83 HC-$2.06 Plus Postage.
DESCRIPTORS Classification; *Cultural Differences; Elementary Education; Ethnic Groups; *Mexican Americans; *Nondiscriminatory Education; *Student Evaluation; Test Bias; *Test Construction

ABSTRACT

Described is the development of an ethnologically unbiased test for proper classification of Mexican-American elementary students. It is explained that of the 14 subtests drawn from standardized and nonstandardized tests and administered to 122 Anglo and Mexican American children (7-9 years old), only five were found to be insignificantly correlated with ethnic background. It is reported that these five subtests along with two additional tests (Haptic Memory and the Peabody Picture Vocabluary Test) were then administered to 297 Mexican-American Ss, and that the results were used to produce a profile of intellect. Educational implications of the test include screening, placement, and differential diagnosis of strengths and weaknesses. Descriptions of the seven subtests are appended. (CL)

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ED138034

# MEASUREMENT OF INTELLECTUAL POTENTIAL IN MEXICAN-AMERICAN SCHOOL-AGE CHILDREN

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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A THREE-YEAR STUDY

BY

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Corpus Christi, Texas
June, 1976

EC100672

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# Acknowledgements

This report and the study it describes have been made possible through a grant from the Texas Education Agency under the auspices of Title III of the Elementary and Secondary Education Act, U. S. Office of Education.

The authors wish to express their appreciation to the Texas Education Agency, Texas Department of Mental Health and Mental Retardation, Pan American University, Region I Service Center, the Harlingen Independent School District, Weslaco Independent School District, and Mercedes Independent School District for their support in making this study possible.

A special thanks is due to Mr. Charles Schotz, Administrative Assistant to the Commissioner, Texas Department of Mental Health and Mental Retardation, for the continued interest and support which he has shown for this project.

# About The Authors

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Arturo Leal, M.A. is a bilingual psychologist in the Community Services Division of the Corpus Christi State School

# Introduction And Background

By Gary V. Sluyter, Ph.D.

The beginnings of a special project to study the problems of misclassifying Mexican-American school children through inadequate test instruments can be traced back to February, 1973. At that time, through the personal interests of Dr. David Wade, then Commissioner of the Texas Department of Mental Health and Mental Retardation, an application for $96,635 in Title III, E.S.E.A. project funds was filed with the Texas Education Agency. That application outlined six ambitious objectives aimed at developing a method of accurately measuring the learning potential of Mexican-American children. Because of the scope of the proposal, Texas Education Agency awarded the Texas Department of Mental Health and Mental Retardation and the Corpus Christi State School a pilot project of $30,635 to study the issue, and to develop a literature review and research methodology which could approach the question.

That initial project led to the funding of a second year program at $84,000 which was actually a first operational year. Beginning in July, 1974, the purpose of this phase was to develop a battery of tests which would be predictive of academic success among Mexican-American children while not correlating with ethnic background. Fourteen preliminary subtests, some newly designed and others drawn from existing instruments were used for this study. A total of 122 Anglo and Mexican-American children from three South Texas independent school districts were selected for testing.

By means of analysis of variance and factor analysis, it was determined that only five of the fourteen subtests correlated insignificantly with ethnic back-

ground. These five and two others were then selected for validation testing during the third year of the project beginning June 1, 1975. This phase, which was funded at the level of $66,018, came to a close on June 30, 1976. A total of two hundred ninety-seven Mexican-American children in the group seven to eleven years were tested with the seven subtest battery. The results of this process have produced what appears to be an ethnologically unbiased test battery which includes seven subtests capable of measuring certain psychological factors which can be expressed as a profile of intellect.

This report discusses the need for such an assessment device (Section II), describes the results of the third year of this project (Section III), relates the results to the educational setting (Section IV), and describes the profile itself (Section V). Also included is a description of each subtest and data on obtaining the test materials.

A final project year has been tentatively approved by the Texas Education Agency for a study to standardize the new test battery on six hundred Mexican-American children from the South Texas area. This final phase will begin in July, 1976 and culminate in a final report which will provide a description of each subtest, administration and scoring procedures, validity and reliability data, and standardization information.

It is our hope that, in time, this test battery will prove useful for school districts throughout Texas in providing more accurate intellectual assessments of Mexican-American school children.

# The Need For Proper Classification Of Mexican-American Children

By Arturo Leal, M. A.

Some projections from the 1970 census demographic data emphasize the apparent need in South Texas. These data indicate that 18 per cent or some 659,324 school-age children in Texas are of Mexican-American descent. The concentration of the Mexican-American school population is most extreme in South Texas. It is estimated that nearly two-thirds of the Mexican-American enrollment in this State are located in 27 counties along the Mexican border or a short distance from it. In this area, three of every five students are Mexican-American compared to one of every five for the State as a whole. For example, approximately 416,800 people of the five border counties of Cameron, Hidalgo, Starr, Zapata, and Webb, some 81.2 per cent are Mexican-American. Applying this percentage to the child population in these five counties, there are approximately 122,200 Mexican-American children out of a total of 150,000 children under fourteen years of age. Among this age group in the State the percentage of pupils who are Mexican-American is greater in elementary schools than in intermediate and secondary schools. The proportion of enrollment that is Mexican-American decreases from 18.6 per cent at the elementary level to 16.0 per cent at the intermediate and 14.8 per cent at the secondary level, but the proportion of enrollment that is Anglo increases markedly at higher levels. It should be pointed out that the distribution of Mexican-American children in special educational settings should be similar to the proportional distribution of Mexican-American children in the populations. Such is not the case. For example, in Cameron County 547 out of 560 educable mentally retarded children are Mexican-American.

Thus, there are 97.7 per cent educable mentally retarded children where one would expect to find 79.2 per cent in such a group. The reasons for this imbalance may be many. Misclassification should not be one of them, although there is enough suspicion that it is.

The evidence suggests that this is not an isolated phenomenon peculiar to South Texas but a National concern as well. The results of intelligence tests for this ethnic group are generally around 10-20 points below Anglo norms on standardized measures. As a consequence, the EMR classes in California contain a higher proportion of Spanish surname pupils. According to the preliminary analysis of the 1969 ethnic survey (cited in Placement of Underachieving Minority Group Children in Special Classes for the Educable Mentally Retarded, 1970), this group constitutes 15.22 per cent of the general non-handicapped population, yet comprises 28.34 per cent of the EMR enrollment in California schools. The rate of labeling Mexican-American children as EMR is three times as high as the rate for Anglos. While the problems of mislabeling and misclassification are apparent in the Mexican-American child population throughout the United States, analysis of and solutions for such problems are complex. It would be easy to suggest that cultural variation (differences) can account for some of the misclassification problems but this is not adequately documented or researched. Objectively there is only cultural difference between any two cultures or subcultures. Each culture fosters and encourages the development of behavior that is adapted to its values and demands. Thus, the bilingual (Spanish-English) child might "appear" to be developmentally retarded since he has to learn to cope with verbal and nonverbal problems using both a synthetic language (Spanish) and an analytic language (English). Further, it would be too simple to suggest that conflict in deciding which of two languages would be of most use in solving problems would slow a child since most such children are competent

problem solvers and adapting quite well to both their home and school environments. This is most evident in the easy shifting between Spanish and English used by most Mexican-American children and adults in the Valley when communicating concepts and solving verbal social problems.

It is apparent that there exists a need for an assessment device which provides a more accurate picture of the Mexican-American child's intellectual strength and weaknesses, and which would be useable in both placement and diagnostic teaching. Such has been the goal of this project.

# In Quest Of An Ethnologically Unbiased Test: An Intellectual Profile Of Mexican-American Children

By Ajit Kumar Mukherjee, Ph.D.

## Introduction:

The growth of civilization has taken place on the basis of certain assumptions. And, eventually those assumptions became the axioms. The concepts of nation, race, culture and subculture were created by human beings (perhaps for some purpose). Today we are trying our best to demolish these barriers. In spite of all our sincere attempts, barriers exist and interfere with the psychological growth of a child. The culture and its influence in the growth of intellect have become a "hot issue" in the field of psychometric research. The outcome of various prolific research projects has produced many psychological tests. And, some of these tests are even labeled as "culture free" tests. At this point a question may be asked—free from which culture? In brief, diagnostic limitation of these tests has placed the children from minority culture at a disadvantage. For example, according to 1974-75 survey, in the State of Texas 305,595 children are attending Special Education Classes, 72,861 of whom are Mexican-American. There are nearly 2,000,000 (two million) Mexican-Americans in the State of Texas. That means 1 out of every 27 Mexican-Americans in the State of Texas, is attending Special Education Classes. The ratio is indeed disturbing. This leads us to the heart of the matter —

(1) Are Mexican-Americans over subscribing to the quota of mentally retarded? Why?

Or

(2) Are the diagnostic tools used designed for fair evaluation of the intellectual abilities of the Mexican-American children?

Any convincing diagnosis of mental retardation needs a fair estimation of an individual's intellectual abilities. In this paper, an attempt has been made to describe a novel technique to estimate the fundamental nature and structure of human intellect which are ethnologically unbiased.

## Rationale:

At this stage of history and knowledge, no one can blueprint a program of preschool enrichment that will with certainty be an effective antidote for the cultural deprivation of children. On the other hand, the revolutionary changes taking place in the traditional beliefs about the development of human capacity and motivation make it sensible to hope that a program of preschool enrichment may ultimately be made effective. The task calls for creative innovations and careful evaluative studies of their effectiveness.
(P.4., Hunt, 1975)

The validity of Hunt's statement need not be overemphasized. The careful evaluation of human capacity is somehow related with evaluation of human intellect Whether the nature of intellect is genotypical or phenotypical is altogether a different issue. At this time it has been realized that intellectual behavior is learned. And, there lies our hope. At this point few pertinent questions come to mind —

a) What is the structure of intellect?

b) Are there fundamental psychological factors which are universally common and can predict learning ability of an individual?

Thurstone (1938) and Guilford (1959, 1976) had expressed their views about multidimensional nature of intellectual abilities. Today we have taken it for granted. And, it appears that there are fundamental psychological factors which can be identified with the process of learning. But our mission is more complicated and demanding. The purpose of this project, the outcome of which is

being presented in this paper, is to develop an instrument to measure the potential of Mexican-American children of Texas. The new instrument must be in a position to:

a) Classify the Mexican-American children accurately

b) Predict the probability of success of a Mexican-American child in the existing educational system.

The research findings reveal that certain behaviors exhibited by the children in testing situations are reliable determinants of future success in schools. The result of elaborate statistical analysis of the traditional tests suggests that some of the behaviors which are reliable predictors of success in schools are long-term memory, short-term memory, problem-solving ability, visual-motor perception, comprehension and ability to communicate. An educational process is a learning process. The ultimate indicator of learning is one's ability to cope with the environment by effective utilization and transfer of past learning. There are various theories which can explain these phenomena. But, the common denominator of these theories is a complicated paradigm of some psychological process, namely discrimination, generalization, association, and abstraction. In this project we attempted to delve out a set of factors from the instrument which adequately evaluate the potential of a Mexican-American child and at the same time possess the sophistication to explain the complicated paradigm of the learning process.

## Procedure:

During the 1974-75 school year, a total of one hundred and twenty-two (122) children in the age group of 88 to 110 months were tested by means of fourteen (14) preliminary subtests. These children were drawn from the Mercedes, Weslaco, and Harlingen Independent School Districts. Table I shows the ethnic and sex distribution of this sample:

Table I

Ethnic and Sex Breakdown of Children Tested (1974-1975)

| | Male | Female | |
|---|---|---|---|
| Anglo | 30 | 30 | 60 |
| Mexican-American | 33 | 29 | 62 |
| Total | 63 | 59 | 122 |

Description of subtests used: The fourteen preliminary subtests were drawn from both existing standardized tests as well as some specifically designed tests for the experimental batteries. These tests were as follows:

1. Wechsler Intelligence Tests for Children-R (WISC)

   Vocabulary
   Digit Span
   Picture Completion
   Block Design
   Coding

2. Wide-Range Achievement Test (WRAT)

   Spelling
   Reading
   Arithmetic

3. Draw-A-Man
4. Columbia Mental Maturity Test
5. Knox Cubes
6. Transposition Test
7. Conceptual Behavior Test
8. Divergent Thinking Test

The data yielded from 1974-75 school year's testing were analyzed by means of analysis of variance and factor analytic statistical techniques. Based

on the results of these sensitive methods, it was determined that only five of the subtests correlated insignificantly with ethnic background, those were WISC-R. Coding, Draw-A-Man, Knox Cubes, Transposition, and Conceptual Behavior.

Table II

Retained Subtests and their Correlation with Ethnic Variable

| Subtest | r | at P.=0.01 |
|---|---|---|
| Coding | 0.1211 | ns |
| Dam | 0.1217 | ns |
| Knox cubes | 0.0925 | ns |
| Transposition | -0.0632 | ns |
| Conceptual Behv. | 0.0280 | ns |

While these five subtests did measure important cognitive abilities related to learning and were retained in the experimental battery, they did not give us a measure of long-term memory, sensory-motor perception, or social and language abilities. Accordingly, two additional tests were included in the new battery for use in the 1975-76 school year; those were Haptic Memory and the Peabody Picture Vocabulary Test (English and Spanish Version). These seven subtests comprised the new experimental battery for use with the sample of children scheduled for 1975-76 school year.

## Results:

To identify the proper subtests from 1974-75 school year measures on two criteria were considered. The criteria were:

a) correlation with ethnological variable

b) factor loading on the retained factors after varimax rotation Cattell's screen test was used to determine number of factors to be retained.

Table III

Retained Factors and their Psychological Nature

| Subtest | Psychological Factors | Factor Loadings After Varimax Rotation |
|---|---|---|
| Draw-a-Man | Social Perception (5)* | 0.9562 |
| Coding | Visual Perception/Psycho Motor Ability (1)* | 0.8967 |
| Knox cubes | Short-term Memory/ Attention Span (4)* | 0.8860 |
| Transposition | Conceptual Learning (3)* | 0.9911 |
| Conceptual Behavior | Concept/Multiple Dis-crimination (2)* | 0.8470 |

( )* Numbers Indicate Psychological Factors They Represent.

During the 1975-76 school year, a total of two hundred and ninety-seven (297) children in the age group 7 to 11 years were tested by means of the experimental battery. The data yielded from 1975-76 school year were used to determine predictive worth of the experimental battery and the reliability of the experimental battery. A step wise multiple regression analysis was done to determine

Table IV

Ethnic and Sex Breakdown of Children Tested 1975-76

| | Male | Female | |
|---|---|---|---|
| Anglo | 65 | 65 | 130 |
| Mexican-American | 82 | 85 | 167 |
| Total | 147 | 140 | 297 |

the predictive worth of the experimental battery. The raw scores of 297 subjects on Draw-A-Man, Coding, Knox Cubes, Transposition, Conceptual Behavior, Haptic Memory, and Peabody Picture Vocabulary Test (English and Spanish version) were used as independent variable and grade point average was used as the criterion variable for multiple regression analysis. Fisher's "intra-class" correlation technique was used to estimate the reliability coefficient of the battery.

Summary of Statistical Analysis

| Statistic | Interpretation |
|---|---|
| 1. Mult-R = 0.875<br>F-Ratio = 3.494<br>Sign P<0.01 | Accounts for nearly 77% of variance of G.P.A. |
| 2. F-Ratio (intra class) = 68.93<br>Sign P<0.01 | |
| 3. F-upper limit at P = 0.01 is 181.97<br>F-lower limit at P = 0.01 is 26.11 | |
| 4. $r_{11}$-upper limit is 0.957<br>$r_{11}$-lower limit is 0.758 | |
| Reliability coefficient estimate is 0.894 | Reliability coefficient accounts for 79.9% of variance and significant at P<0.01 |

## Conclusion:

1. The experimental battery obtained can reliably predict success in school and it does consistently measure what it is supposed to measure. The battery is exhibiting an interesting limitation. The subtest named conceptual behavior correlated significantly with age. Majority of the subjects above ten years of age scored very high in conceptual behavior subtest.

2. The experimental battery is ethnologically unbiased.
3. The experimental battery is designed to measure seven mutually independent psychological factors related to learning process. Therefore, it is in a position to produce a profile of intellect.

A century old problem of wrong labeling cannot be solved simply by the help of an ethnologically unbiased test. But the proper utilization of this battery may start a new era for proper evaluation of the intellectual potential of Mexican-American children.

# Educational Implications Of The Research Battery

By Susan Ander, Ph.D.

I. Screening

II. Placement

III. Differential Diagnosis of Strengths and Weaknesses

IV. Downward Extension of the Research Battery

## I. Screening

The Research Battery can be an effective tool for screening children prior to first grade. By the local independent school district establishing its own norms on a group of entering first graders, then correlating their scores with successful completion of the grade in the Spring, cutting scores can be established to be used the following year to predict the possibility of success or failure of (new) entering first-graders.

The Battery would then be normed on the local population, and children who fall below the cutting score can be scrutinized more closely in terms of teacher utilization of the data for instructional purposes.

The First Grade Screening Test (Webb and Pate, American Guidance Service Co.) is one such instrument in current use. Because of lack of inclusion of Mexican-American children in the sample, the appearance of items which are culturally loaded, and the verbal nature of the test, the Research Battery would be a more appropriate instrument for these (Mexican-American) children.

## II. Placement

For those children being considered for placement in classes for the mentally retarded, the Research Battery would provide measures free from the cultural and linguistic constraints of many I.Q. tests in current use. Also, the Research Battery is predicated upon several factors of intelligence believed to correlate highly with school success.

Thus, the Research Battery appears to be a highly desirable option, preferable to instruments which tap only one or two aspects of intelligence, and would yield a reliable measure of inter-individual differences between (Mexican-American) children.

## III. Differential Diagnosis Of Strengths And Weaknesses

The Research Battery can be used as a criterion-referenced tool to identify the learner's own pattern of strengths and weaknesses. Teacher utilization of the learner's profile would include looking at the weaknesses to help in planning an educational program for amelioration of the deficits and noting strengths upon which methods and materials can be overlaid for the purpose of acquisition of basic academic skills in the tool subjects.

The need for data of this sort has been brought sharply into focus with the advent of Plan A in Texas. It has been determined, also, that some instruments for detection of learning disabilities carry a cultural bias, and, therefore, minority children are being unduly accorded the designation of "learning disabled." One of the functions, then, of the Research Battery would be to provide reliable data on the learner's sensory status, as defined by the factors being measured within the subtests of the Research Battery.

# IV. Downward Extension Of The Research Battery

By standardizing and establishing norms for pre-school utilization, the Research Battery may yield its greatest effectiveness in terms of providing data for preventive educational programming. The State of Texas, under Plan A, is mandated to provide educational services to handicapped youngsters between the ages of 3-21 years. The Research Battery, by providing baseline data, then utilized in a test-retest manner, may afford significant opportunity for more effective curriculum development for young, handicapped children.

# Importance Of The Intellectual Profile

By Ajit Kumar Mukherjee

In recent years means and techniques for proper utilization of results of psychometric evaluation have become a social issue. There is a tendency to get away from the concept of I.Q. and supplement it with something more meaningful and useful for educational purposes. In this project we attempted to introduce the concept of "Intellectual Profile of the Individual". The individual profiles will serve two purposes:

1) Diagnose areas of strengths and weakness

2) Assess level of intellectual functioning

(A sample copy of a profile is attached with this report)

Let us consider a concrete example. The raw scores of John Jones, an 8 yrs. 3 month old boy from St. Paul School, in seven subtests, were converted into standard scores (Z-scores) and, were plotted against corresponding subtests to obtain his "Individual Intellectual Profile".

| Subtest | Psychological Factor | Z-Score |
|---|---|---|
| I. Draw-A-Man | Social Perception | +1.1 |
| II. Coding | Visual Perception/Psycho-Motor Ability | +2.7 |
| III. Knox Cubes | Short-Term Memory/Attention Span | +0.8 |
| IV. Transposition | Conceptual Learning | −0.6 |
| V. Conceptual Behavior | Concept/Multiple Discrimination | 0.0 |
| VI. Haptic Memory | Long-Term Memory/Sensory Motor Perception | −1.5 |
| VII. Peabody Picture Vocabulary Test | Social and Language Ability | +0.8 |

Analysis of John's profile reveals that he is above average in every factor except in Conceptual Learning, Multiple Discrimination and Long-Term Memory/Sensory Motor perception.

Now the question is—Can we facilitate John's learning process primarily through visual perceptual process and his psychomotor abilities?

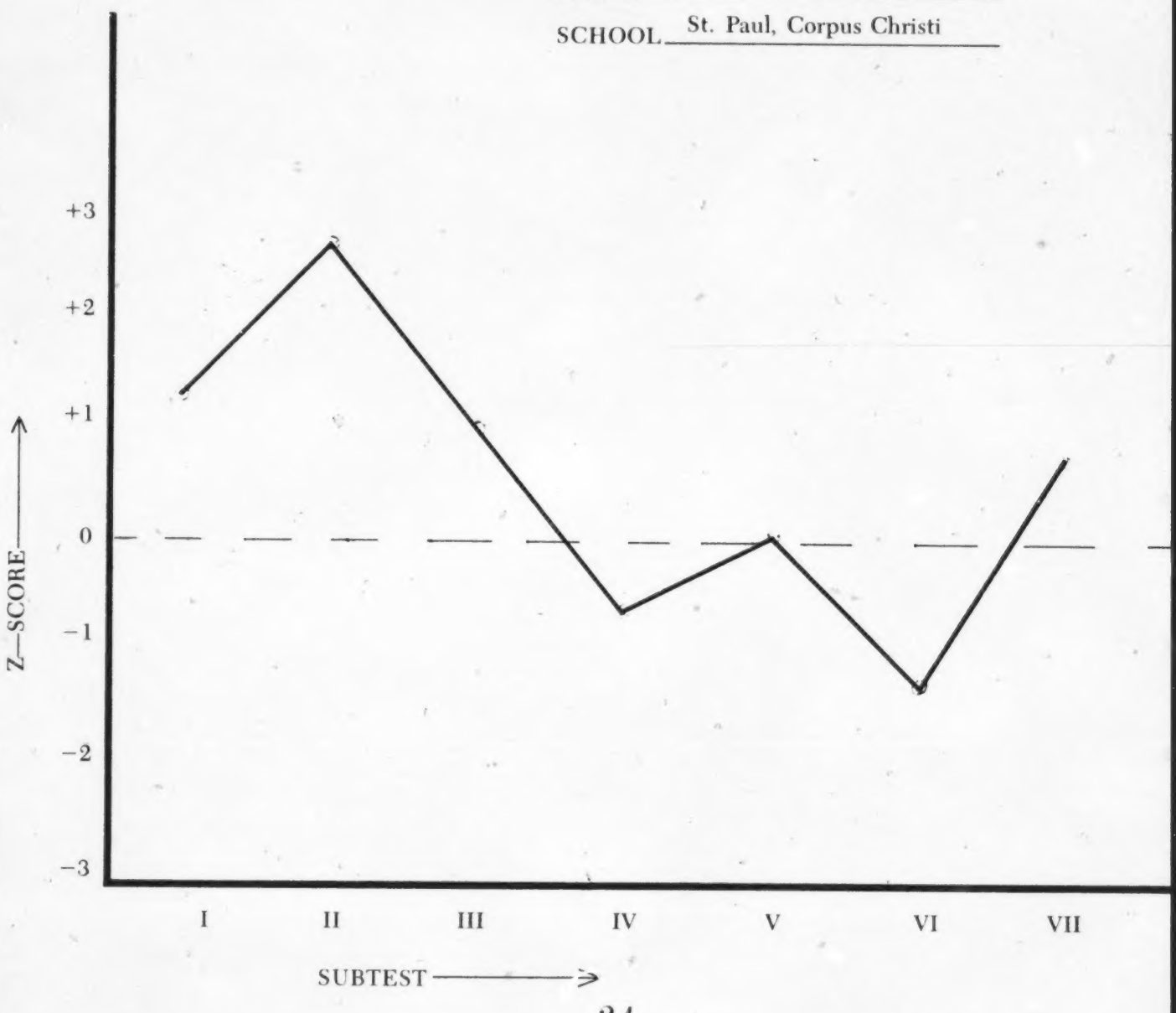
It is up to innovative educators to answer the question. The Intellectual profile can also be used to estimate John's mental age and I.Q. The standardization of this test battery will, of course, place us in a position to estimate the student's mental age.

# Profile Of Intellect

NAME John Jones

AGE 8 yrs. 3 months

SCHOOL St. Paul, Corpus Christi

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# Appendix A

# Seven Experimental Subtests To Be Used With Standardization Phase

## Special Notice

The seven subtests used in the experimental test battery have been drawn from a variety of sources, and the special battery, as such, is not available commercially as an integrated unit. The components must, therefore, be assembled by the user by securing them from the various sources. These sources are listed in the material which follows.

# Peabody Picture Vocabulary Test

Description of Materials:

Test kit includes: (1) a spiral bound book containing 150 numbered plates preceded by 3 example plates, and (2) separate individual test records. The individual test records list stimulus words and keys to correct responses.

Description of Process:

The child is asked in Spanish to pick a picture from 4 alternates, using either an oral or pointing response. Precede each stimulus word with the words, "Show me - Enseñame?"

Description of Factors Measured:

Social and Language Ability

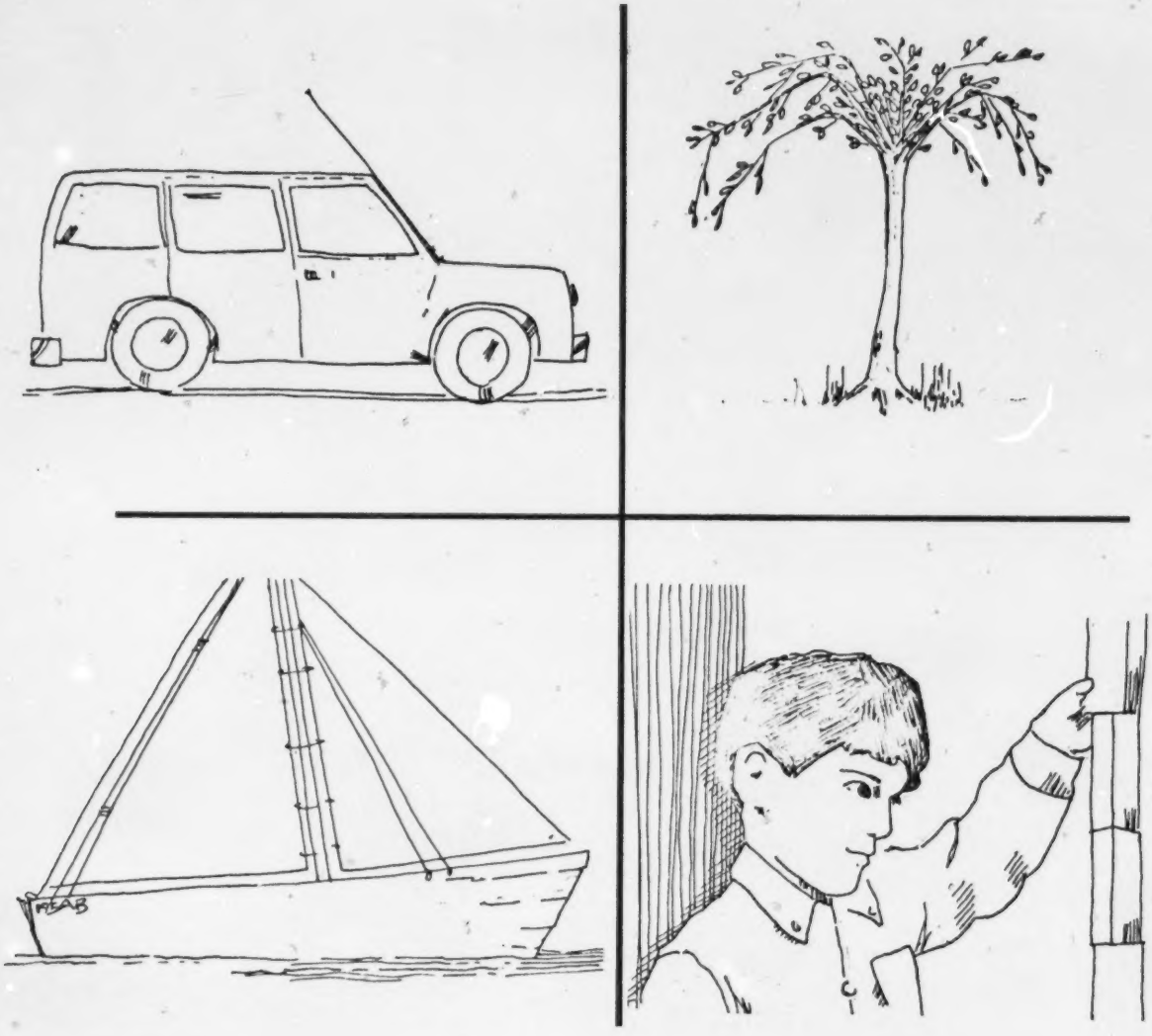
Source of Test Materials:

American Guidance Service, Inc.
Publisher's Building
Circle Pines, Minnesota 55014

Spanish Translation Contact:

Dr. Ajit Kumar Mukherjee
Corpus Christi State School
P. O. Box 9297
Corpus Christi, Texas 78408

# * Illustration of PPVT



* Changed for this illustration to comply with copyright.

# Spanish Version of PPVT

| Page | Stimulus | Correct Response |
|---|---|---|
| 1 | muñeca | 3 |
| 2 | cuchillo | 1 |
| 3 | arbol | 4 |
| 4 | escoba | 1 |
| 5 | copa | 2 |
| 6 | arma | 1 |
| 7 | bandera | 4 |
| 8 | juguetes | 3 |
| 9 | pastel | 2 |
| 10 | oso | 1 |
| 11 | baño | 3 |
| 12 | lavado | 4 |
| 13 | planchando | 2 |
| 14 | cinto | 4 |
| 15 | tocando | 3 |
| 16 | bolsa | 3 |
| 17 | pera | 2 |
| 18 | brincando | 3 |
| 19 | acha | 2 |
| 20 | cubierto | 4 |
| 21 | pato | 3 |

| | | |
|---|---|---|
| 22 | vegetal | 2 |
| 23 | asando | 2 |
| 24 | comiendo | 2 |
| 25 | toronja | 3 |
| 26 | barbero | 4 |
| 27 | amarrando | 2 |
| 28 | pluma | 2 |
| 29 | lagarto | 3 |
| 30 | liquido | 2 |
| 31 | volando | 1 |
| 32 | ambulancia | 2 |
| 33 | serrucho | 3 |
| 34 | cosiendo | 1 |
| 35 | pala | 4 |
| 36 | jarron | 4 |
| 37 | planta | 4 |
| 38 | soldado | 4 |
| 39 | caboose | 2 |
| 40 | camino de fierro | 2 |
| 41 | caja fuerte | 1 |
| 42 | prisonero | 3 |
| 43 | araña | 1 |
| 44 | quebrando | 1 |
| 45 | tejiendo | 3 |
| 46 | bisagra | 4 |
| 47 | amistad | 4 |
| 48 | dentista | 3 |

| | | |
|---|---|---|
| 49 | isla | 4 |
| 50 | electricidad | 2 |
| 51 | el jaque de mano | 2 |
| 52 | rama | 1 |
| 53 | tornillo | 2 |
| 54 | borrego | 3 |
| 55 | bajando | 4 |
| 56 | sacar agua | 4 |
| 57 | fuego | 2 |
| 58 | sirviendo | 3 |
| 59 | cordon | 4 |
| 60 | chango | 1 |
| 61 | reparacion | 2 |
| 62 | tornillo de banco | 1 |
| 63 | sonando | 4 |
| 64 | secretaria | 2 |
| 65 | pelando | 1 |
| 66 | musico | 2 |
| 67 | catedral | 2 |
| 68 | destruccion | 2 |
| 69 | cariñoso | 1 |
| 70 | mirada fija | 2 |
| 71 | helote | 4 |
| 72 | ropa | 2 |
| 73 | cocinero | 1 |
| 74 | planeta | 1 |
| 75 | asustar | 1 |

# Draw-A-Man Test

Description of Materials:

Blank paper and pencil

Description of Process:

The child is asked to draw the best picture of a man that he can. Credit is given for the inclusion of individual body parts, clothing details, perspective, proportion, and quality of drawing.

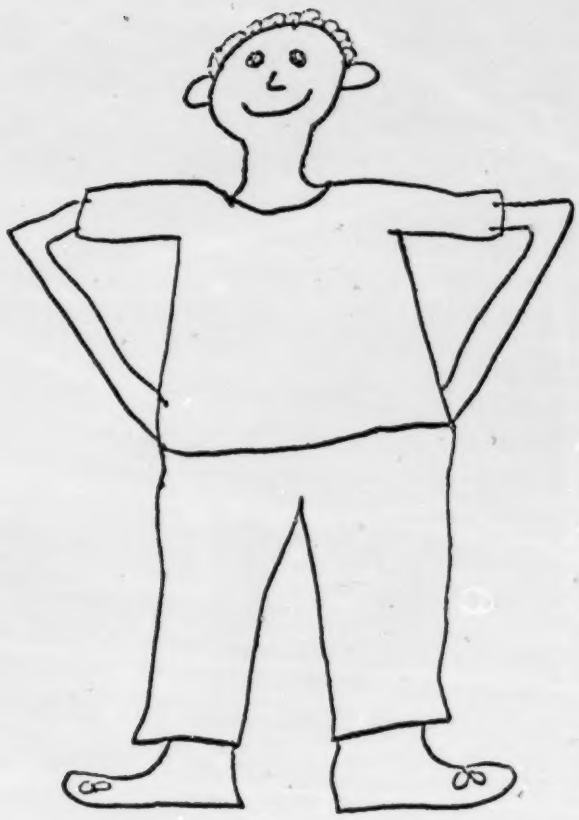
Description of Factors Measured:

Social perception; visual-motor ability

Source of Test Materials:

Goodenough-Harris Drawing Test
Harcourt, Brace, and World, Inc.
New York, New York

## Illustration Of Draw-A-Man Test



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# Transposition Test

Description of Materials:

A small square and a large square.

Description of Process:

In this test we are exposing the child to learn a rule, retain it through repetition, and measure the ability to learn by a converse statement of the same rule.

For example:

We start with the "larger than concept" at the transposition stage.

At the discrimination stage we retain the concept.

And finally, at the shift stage we expect the examinees to manifest learning the converse statement of the rule to the "smaller than concept."

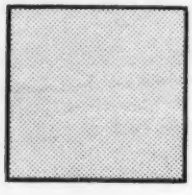
Description of Factors Measured:

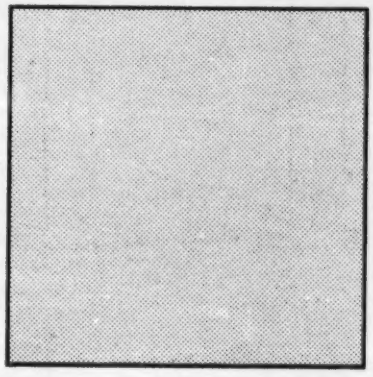
Conceptual learning

Source of Test Materials:

Dr. Ajit Kumar Mukherjee
Corpus Christi State School
P. O. Box 9297
Corpus Christi, Texas 78408

## Illustration Of Transposition Test





# Knox Cubes

Description of Materials:

The child is presented with 4 cubes of like size mounted on a black or white base and a pencil for tapping.

Description of Process:

In demonstration, the examiner taps each of 4 cubes in a predetermined order and then indicates that the child is to do likewise. This procedure is repeated with successive series of taps increasing in length and complexity.

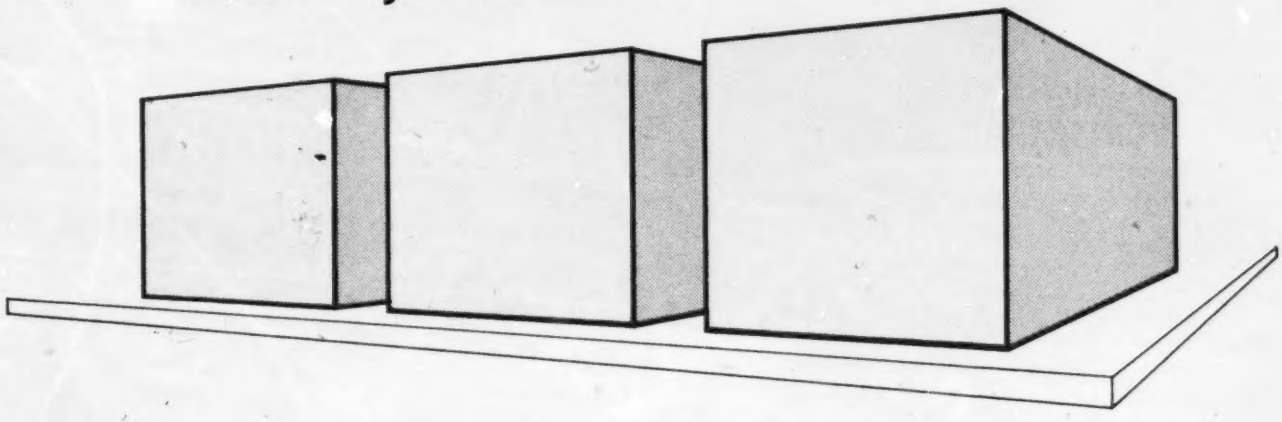
Description of Factors Measured:

Short-term Memory/Attention Span

Source of Test Materials:

Arthur Point Scale (out of print).

## Illustration Of Knox Cubes



# Social Modeling Of Conceptual Behavior

Description of Materials:

Red, green and blue cylinders, pyramids and cubes of varying sizes.

Description of Process:

The examiner displays the 27 stimuli in random display in front of the child and very carefully chooses objects according to a conceptual rule (e.g., all red objects or all cubes) and places them in a separate pile, indicates to the child the separate pile, mixes up all the blocks into a random pile, and then by gesture indicates that the child is to sort out the same blocks in imitation of the examiner. After completing the task, the child is asked if he can state the rule for the sorting process he used, such as: "How did you know which ones to choose?"

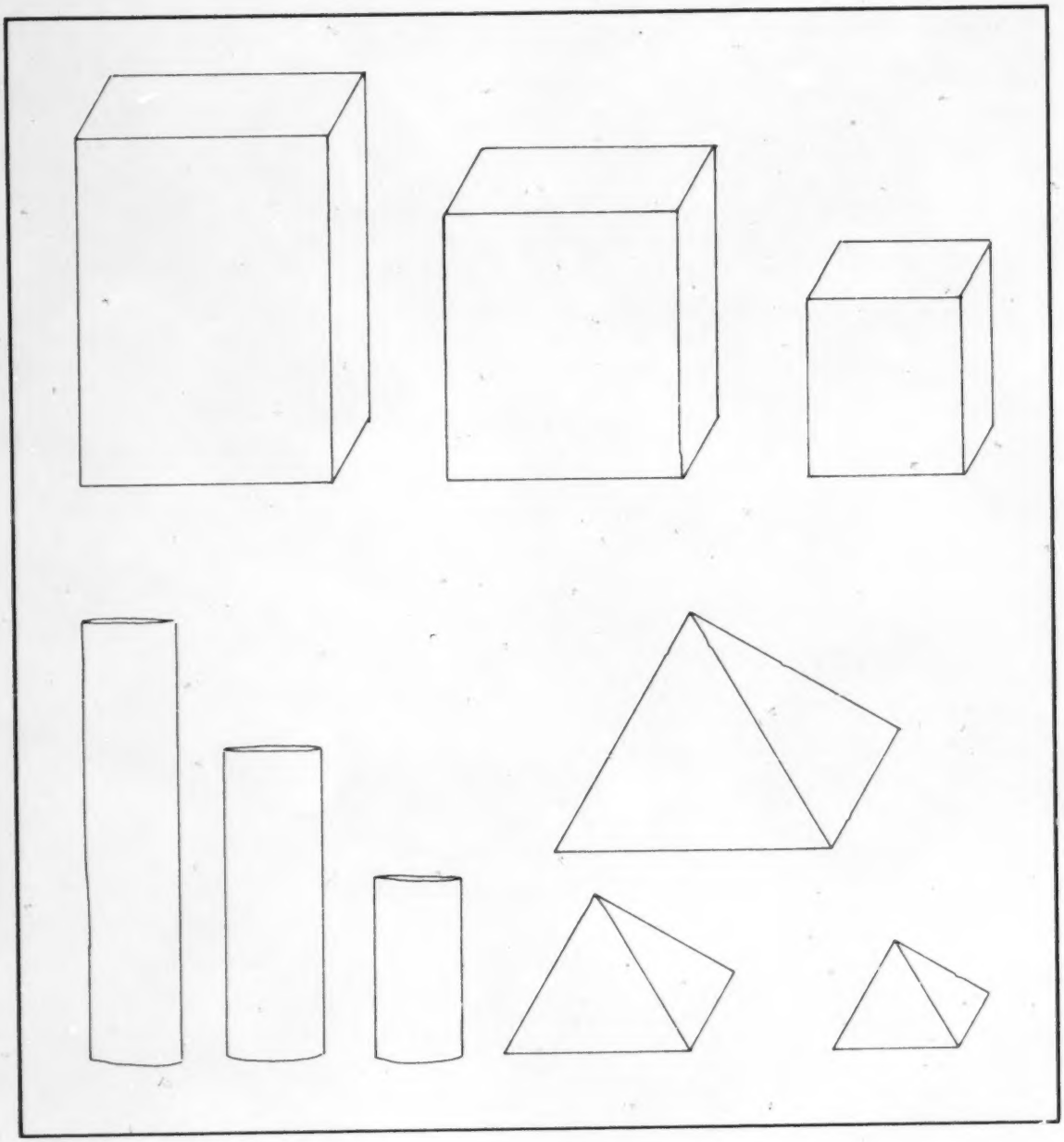
Description of Factors Measured:

Concept Formation/Multiple Discrimination

Source of Test Materials:

Dr. Ajit Kumar Mukherjee
Corpus Christi State School
P. O. Box 9297
Corpus Christi, Texas 78408

## Illustration Of Social Modeling Test



# Coding (WISC-R)

Description of Materials:

This is a code substitution test. For children under 8 years of age, the key contains 5 unique patterns with a distinctive symbol inside each pattern; for children over 8 years of age, the key contains 9 digits paired with 9 distinctive symbols.

Description of Process:

With the appropriate key before him, the child has 120 seconds to fill in as many symbols as he possibly can in each pattern or under each number on the answer sheet. Time bonuses are given for perfect performance under 120 seconds.

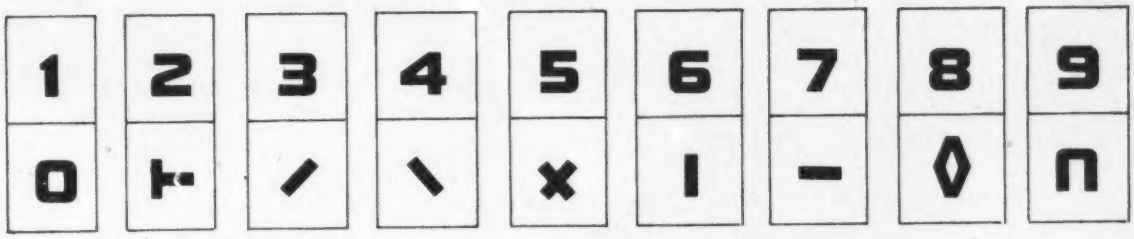
Description of Factors Measured:

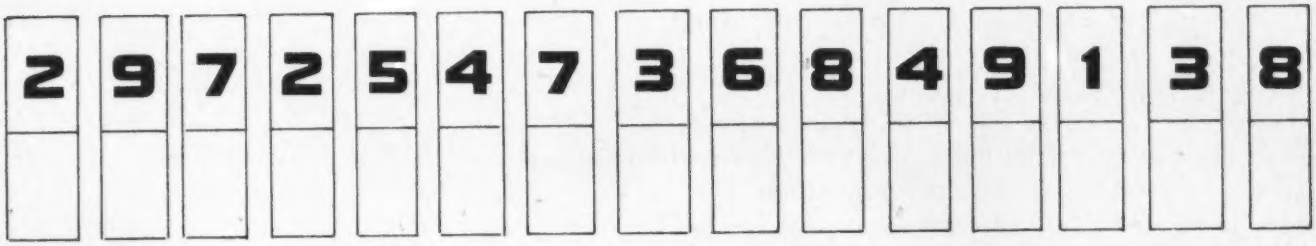
Visual Perception/Psychomotor Ability

Source of Test Materials:

Wechsler Intelligence Scale for Children (revised)
The Psychological Corporation
757 Third Avenue
New York, New York 10017

## * Illustration Of Coding (WISC-R)




* Changed for this illustration to comply with copyright.

# Haptic Memory Test

Description of Materials:

Round and square beads mounted on a wooden base.

Description of Process:

Blindfold the child and have him feel the different arrangement of beads and ask him to decipher the pattern from another set arranged in the same sequence.

Description of Factors Measured:

Long-term Memory/Sensory Motor Perception

Source of Test Materials:

Haptic Memory Test

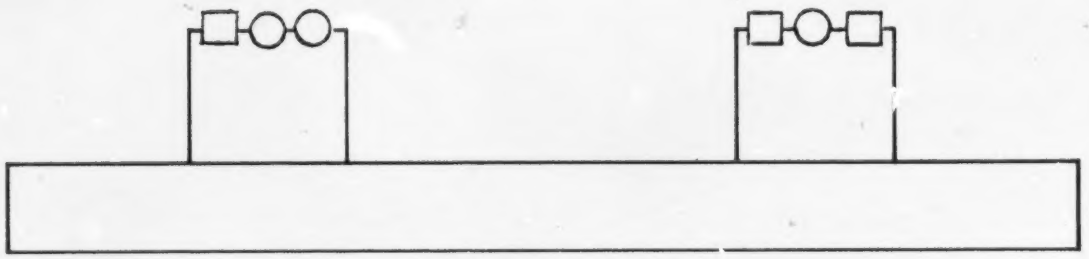
Susan Ander, Ph.D.

Riverview Professional Building

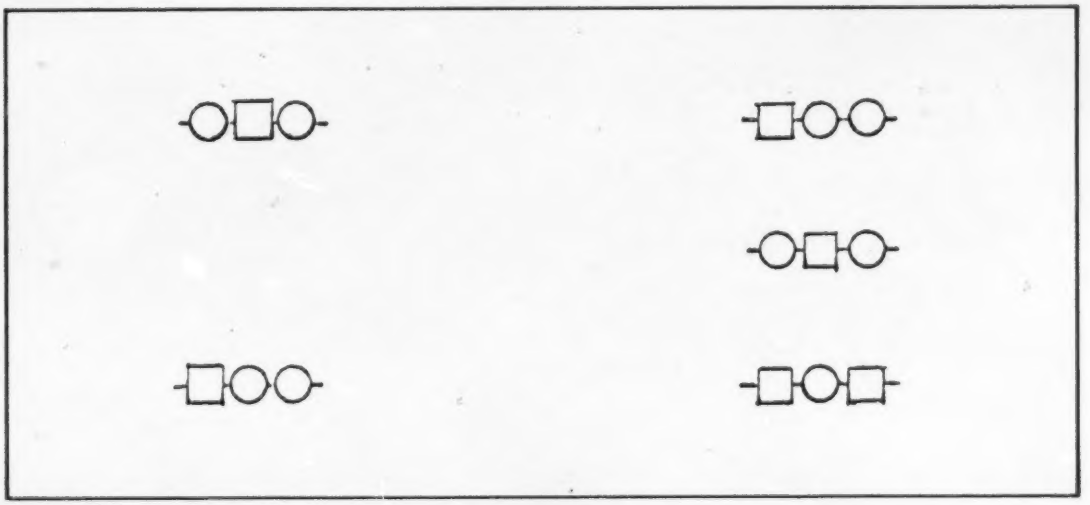
Suite 4-A

Harlingen, Texas 78550

# * Illustration Of Haptic Memory Test



FRONT VIEW



PLAN VIEW

SCALE: ½" = 1"

* With the permission of the author.